cleanenergy.org
Southern Alliance for Clean Energy

Biopower Fact Sheet

What is biopower?

Biopower is the use of readily available plant and animal matter often referred to as "biomass" to produce heat or electrical generation. Locally grown energy supplies that include everything from cotton stalks, hay, wheat straw, switchgrass, peanut hulls, wood chips, bark, logging residue, swine waste and poultry litter, can be used as a fuel source for biopower.

Is biopower being used today?

According to U.S. Department of Energy's office of Energy Efficiency and Renewable Energy (EERE), biopower is the largest source of non-hydro renewable energy in the world and as of May 2005 there was over 7,800 megawatts of biomass power capacity in 350 locations in the United States. Today's operating capacity generates approximately 44 billion kilowatt-hours per year, an amount equivalent to the electricity used by 4.5 million average U. S. homes.

How is biopower produced?

Biopower is produced when organic material is converted into a gaseous fuel or oil or burned directly to generate electricity.

- Direct-Fired Systems: These systems burn biomass directly to produce steam. The steam is captured by a turbine and then converted into electricity by a generator.
- Co-Firing: This system mixes biomass materials with coal in high effiency coal-fired boilers as a means of reducing overall emissions from coal-fired power plants.
- Pyrolysis: Biomass is heated up in the absence of air, causing the biomass to decompose into liquids, gases, and solids that can be used as fuels for power production, steam, heat, or for production of various materials and chemicals.
- Anaerobic Digestion: A natural or artificially occurring process in which biomass is decomposed by bacteria in the absence of oxygen, producing methane that can be used for energy production. This is typically fueled by manure or landfill waste.
- Gasification: Biomass is heated up in the absence of oxygen to produce a low heat gas, which can then be used in a combined cycle power generation plant that is considered highly fuel efficient.

What are the benefits of biopower?

✓ **Stimulates rural economic development** by creating new sources of income, new jobs, and new uses for agricultural and forestry products and wastes.

✓ **Enhances our national security** by reducing dependency on foreign oil and ensuring safer communities. We can meet our energy supply needs right here at home.

✓ **Offers important environmental improvements, such as:**

- **Reducing Sulfur Dioxide (SO_2) Emissions**: Biomass contains very small amounts of sulfur, a precursor to acid rain and haze.
- **Reducing Nitrogen Oxide (NO_x) Emissions**: Smog forming NOx emissions can be greatly reduced at co-fired power plants.
- **Reducing Carbon Dioxide (CO_2) Emissions**: Biopower can be viewed as a way to recycle global warming causing carbon dioxide. CO_2 absorbed during the plant's growth cycle is released during the biopower production processes and then reabsorbed in the next crop of plants.

What is Southern Alliance for Clean Energy doing?

- Supporting energy legislation and policies that will assist in meeting the vision established by the 25X25 Working Group that calls for 25% of the energy used in the U.S. by 2025 to come from America's working lands.
- Working with allies in agricultural and rural communities to identify environmentally sustainable bioenergy opportunities that will help promote our goals of ensuring clean, safe, and healthy communities throughout the Southeast.
- Working to increase communication and information sharing with farmers, foresters, politicians, community decision makers, and academic researchers on important energy issues.

What can you do to help?

•**Join Southern Alliance for Clean Energy.** Support our efforts to promote clean energy technologies. Visit www.cleanenergy.org.

•**Invest in bioenergy.** Average farmers can become energy producers, just like big oil and electric utility companies. They can create new markets and jobs for agriculture, and help reduce global warming.

•**Contact your federal and state legislators** and ask them to support legislative action to develop clean energy sources.

For more information contact Southern Alliance for Clean Energy
1-866-522-SACE (7223) or www.cleanenergy.org
In Georgia: 404-659-5675 In Tennessee: 865-637-6055
In North & South Carolina: 919-545-2920

SACE April 2008